DOCUMENT RESUME

ED 231 398 IR 050 377

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TITLE Selecting and Implementing a Computer Based Library System: An Outline of the Process and Annotated Bibliography.
PUB DATE 12 May 83
NOTE 35p.
PUB TYPE Guides - Non-Classroom Use (055) -- Reference Materials - Bibliographies (131)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Annotated Bibliographies; Computer Oriented Programs; Contracts; *Library Automation; Library Equipment; Library Networks; Media Selection; *Needs Assessment; *Program Implementation; Proposal Writing; Specifications; *Systems Development
IDENTIFIERS *Wisconsin Department of Public Instruction

ABSTRACT

This guide was developed as a "starter kit" for those beginning the process of selecting and implementing computer-based library systems. The main section outlines a process for libraries to use in system selection, including (1) initial considerations; (2) project planning and management; (3) analyzing the alternatives; (4) the selection process; (5) the contract; (6) installing the computer; (7) system implementation; and (8) applications. Appendices provide an annotated list of reading which corresponds to respective sections of the outline, a selected and annotated bibliography of readings on the topic, and a list of sample documents that are available from the Wisconsin Department of Public Instruction's Automation Consultant Office, such as requests for proposals (RFP's)/system specifications, needs analyses, requests for information, contracts, and network agreements. (LMM)

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SELECTING AND IMPLEMENTING A COMPUTER BASED LIBRARY SYSTEM: AN OUTLINE OF THE PROCESS AND ANNOTATED BIBLIOGRAPHY

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5/12/83

IR050377

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INTRODUCTION

As the automation consultant for the Wisconsin Department of Public Instruction, Division of Library Services, I have received many questions regarding the process of selecting and implementing computer based systems. In response to these concerns, I have developed this guide to serve as a "starter kit" for those embarking on the process.

The document is divided into four sections. The first section is an outline of the process a library may wish to use in selecting a system. The second section (Appendix A) consists of an annotated list of reading which corresponds to respective sections of the outline. The third section (Appendix B) consists of a selected and annotated bibliography of readings on the tropic. The final section (Appendix C) consists of a list of sample documents that are available from the automation consultant's office.

As noted above, this document can serve as a "starter kit". It does not contain detailed information on every aspect of the process. The author is available to assist all Wisconsin libraries with the process of selecting and implementing automated systems. The consultant also maintains a current list of vendors of automated library systems, services and supplies which is available upon request.

1. Introduction.

1.1. The systems approach to library automation.

1. Definition of a library system.

2 Definition of a computer based library system.

3. Hierarchial levels of a library system.

1.2. Elements of a computer based library system.

1. System's goals or purposes.

2. System's input.

3. System's processing operations.

4. System output.

5. System environment.

6. Computer hardware.

8. Computer software.

9. System communications.

10. Human resources.

11. Information resources.

1.3. Methods of developing computer based systems.

1. Purchasing or leasing a turnkey system.

2. Purchasing service from a service bureau or network.

3. Replication of a system developed by another library.

4. Developing a system in-house from scratch.

5. Contracting for a custom designed system.

1.4. Benefits, costs and concerns associated with computer based systems.

1.4.1.Benefits.

1. Allows for streamlined systems and procedures.
2. Facilitates the collection of better management data.
3. Provides a means of offering new or improved services to patrons and staff.
4. Allows the library to perform more work without hiring additional staff.
5. Allows staff to perform fewer undesirable tasks and concentrate on more rewarding and stimulating duties.
6. Facilitates cooperation between libraries.
7. Provides improved accuracy and accountability for control over information and services.
8. Provides access to external computer based services not available any other way.

1.4.2. Costs.

1. Hardware and software acquisition.
2. Hardware and software maintenance.
3. Site preparation.
4. Staff supervisory time and retraining.
5. Coversion of data from the old system to the new system.
6. Modifying and upgrading hardware and software.
7. Delays in system implementation.

8. Loss of patron goodwill if the system doesn't perform as advertised.
9. Loss of credibility if things go wrong.
10. Possible loss and the subsequent need to replace data.

1.4.3. Concerns.

1. Staff fears
2. Job changes.
3. Productivity.
4. Risk of failure.

2. Project planning and management.

1. Selection and appointment of a project manager.
2. Establishment of a project advisory committee.
3. Development of a long range plan for automation.
4. Defining the project to be undertaken.
5. Preparing a plan for project completion.
6. Obtaining project approval.
7. Locating and hiring a project consultant (if necessary).
8. Identification of other project resource people as necessary.
9. Learning about technology.

3. Analyzing the alterntives.

3.1. Identify the problem or opportunity.

1. Define the objectives of the study.
2. Define the scope of the study.
3. Identify possible outcomes.

3.2. Identify the methodology to be used in the study.

1. Procedures.
2. Planning and schedules.
3. Personnel.
4. Equipment and materials.

3.3. Review of the existing system.

1. Goals and objectives.
2. Subsystems.
3. Documents and files.
4. Workflow.
5. Work performed in the systems.
6. Resources required.
7. Cost/benefit analysis.
8. Problems with the existing system.

3.4. Defining the new system.

1. Goals and objectives.
2. Requirements.
    1. General.
    2. Functional.
    3. Performance.
3. Identify the outputs and inputs.
4. Preparation of a Request for Information (RFI).

3.5. Consider the alternatives.

1. Establish the decision criteria.
2. Prepare a list of alternatives.
3. Identify resources required for each alternative.
4. Complete a cost/benefit analysis for the alternatives

3.6. Recommend a solution.

1. Identify the best alternative.
2. Develop an implementation plan.
3. Identify the overall system design.
4. Identify the outputs and inputs.

3.7. Write the final report.

4. The selection process.

4.1. Introduction.

1. Purpose of the selection process.
2. Bid vs. proposal.
3. Identify the decision rules for selecting the best response.
4. Subjective vs. objective criteria.
5. Developing the Request for Proposal (RFP).
6. Solicatation of responses.

4.2. The Request for Proposal.

1. Introduction.
2. Rules for governing competition.
3. General requirements.
4. General systems requirements.
5. Functional specifications.
6. Performance requirements.
7. Presentation of cost data.

4.3. Methodologies for evaluating vendor responses.

1. Subjective judgement.
2. Cost only.
3. Weighted score technique.
4. Performance/cost ratio.

5. Least cost total.

4.4. Surveying users of turnkey systems.

1. General considerations.

2. Develop a written list of questions.

4.5. Writing the final report.

1. Introduction to the report.

2. Identification of the evaluation team.

3. List of vendors solicited and responding.

4. Description of the decision rules.

5. Description of the process.

6. Final recommendations.

5. The contract.

1. Rationale for negotiating.

2. Negotiation skills.

3. The negotiation process.

4. The purchase/lease contract.

5. The software contract.

6. The maintenance agreement.

7. Additional contracts.

8. Financial considerations.

6. Installing the computer.

1. The computer room.

2. Environmental concerns.

3. Security.

4. Hardware and supplies.

5. Disaster plans.

6. Communication alternatives.

7. Implementing the system.
    1. Managing the computer system.
    2. Creating the data base.
    3. Labeling the collection.
    4. Tailoring the system to fit your needs.
    5. Designing the reports and notices.
    6. Conducting the acceptance test.
    7. Public relations.
    8. Instructing the public.
    9. Post implementation evaluation.
8. Applications
    1. Circulation control.
    2. Automated catalog.
    3. Materials booking.
    4. Serials control.
    5. Acquisitions.
    6. Information retrieval.
    7. Interlibrary loan.
    8. Cataloging support systrems.
    9. Retrospective conversion.
9. Appendices.
    A. Selected readings on each topic.
    B. Selected/annotated bibliography.
    C. List of sample documents available through DPI.

APPENDIX A

SELECTING AND IMPLEMENTING A COMPUTER BASED LIBRARY SYSTEM

SELECTED READINGS ON THE TOPICS COVERED IN THE OUTLINE

1.1 The systems approach to library automation.

Corbin, John. Developing Computer Based Library Systems. p. 1-3.
Provides a good overview of the library as a system.

1.2 Elements of a computer based library system.

Boss, Richard W. "Automated Circulation Control Systems." p. 151-164.
Examines some of the issues that must be addressed when selecting a system: the cost/benefit analysis, single function vs. a multifunctional system, standalone vs. a shared system, hardware expandability, software transportability and the interfacing of a system.

Boss, Richard W. "Automated Circulation Control Systems." p. 133-150.
General discussion of the various pieces of hardware required in a system. Includes the CPU, types of computers, input and output peripherals, secondary storage devices, operating software and applications software.

Boss, Richard W. "General Trends in Implementation of Automated Circulation Systems." p. 198-202
Describes overall trends in the turnkey system market. These include greater functional integration, improved user interfaces, and shared facilities linking many libraries together.

Cohen, Elaine. Automation Space and Management, and Productivity, p. 39-69.
Discusses the various pieces of hardware associated with an automated system.

Corbin, John. Developing Computer Based Library Systems. p. 3-14.
Excellent summary of the elements comprising a computer based library system. The corresponding portion of the outline was taken from this work.

Grosch, Audrey. Minicomputers in Libraries 1979-1980. p. 43-72.
Brief but good discussion of the various pieces of hardware that comprise a minicomputer system.

1.3 Methods of developing computer based systems.

Corbin, Jchn. Developing Computer Based Library Systems, p.15-18.
Good summary of the options available.

Grosch, Audrey. Minicomputers in Libraries 1979-80, p.19-26.
Good summary of the options available.

1.4 Benefits, costs and concerns associated with computer based systems.

Boss, Richard. "Automated Circulation Control Systems," p. 151-154, 165-168.
Brief look at the cost benefits of automating.

Boss, Richard. The Library Manager's Guide to Automation, p. 63-70.
Examines some major risks associated with the implementation of automated systems. Paramont are inadequate resources, organizational change and the impact on staff.

Brown, Carol. The Minicomputer Simplified, p. 79-85.
Examines the potential benefits and costs of a computer system from the point of view of a businessman.

Cohen, Elaine. Automation Space Management and Productivity, p.1-24.
Discusses the human concerns raised when a library is considering library automation.

Conroy, Barbara. "The Human Element: Staff Development in the Electronic Library." p. 91-106.
Excellent article on the topic. Points out that even in an automated library environment, library personnel are the key to developing and delivering quality information services. Staff development is a key to effective operations in the electronic library. Staff development efforts offer learning opportunities to enable library personnel to adapt to new needs and times. At the same time, such efforts preserve stability important to the institutions' role and functions.

Corbin, John. Developing Computer Based Library Systems, p. 19-20.
Examines the general advantages and disadvantage of computer usage in the library.

Dickson, G.W. and Simmons, John K. "The Behavioral Side of MIS: Some Aspects of the People Problem." p. 59-71.
To enjoy the technical benefits of management information systems, it is often necessary to solve the dysfunctional side effects stemming from behavioral problems in short, people problems. Reactions to the installation of MIS may

range from failure to use the output to outright sabotage. The authors identify three types of dysfunctional behavior: aggression, projection, and avoidance that may appear in four groups operating personnel, operating management, technical staff, and top management. Only the technical staff being designers and agents of change show no dysfunctional behavior. Operating management, the group that should enjoy most of the system benefits, goes farther than any other groups in its resistance, and exhibits all three forms. The authors suggest ways of minimizing the behavioral problems that may follow introduction of MIS.

Kimber, R.T. Automation in Libraries. p. 17-27.
Overview of the good and the bad of library automation.

Malinconico, S. Michael. "Hearing the Resistance."
p. 111-113
Indicates that change has both a social and technical aspect. The social aspect of change, i.e., the manner in which it effects a person's relationships with and within an organization, is of particular importance in determining resistance. Individuals are remarkably resourceful in finding ways of defeating and rejecting changes that threaten established relationships.

Malinconico, S. Michael. "Listening to the Resistance."
p. 353-355.
A continuation of an earlier article "Hearing the Resistance." Describes how individuals resist the isolation resulting from a computer environment. The individual also may lose his structural identity when participating in a cooperative environment. The resistance to change can be modified by providing the individual the ability to influence the nature and direction of change. New managerial requirements and organizational structures may be required to deal with the automated library.

Swihart, Stanley. Computer Systems in the Library.
p. 11-16.
Very positive view of library automation.

Tedd, L.A. An Introduction to Computer Based Library Systems, p. 4-10.
Brief discussion of the reasons for automating.

2.0 Project planning and management.

Boss, Richard W. "Circulation Systems: The Options."
p. 77-81.
Discusses various ways librarians can use to keep up with technological change.

Corbin, John. Developing Computer Based Library System,
p. 39-46.
Excellent discussion of the topics listed in the outline.

Includes sample of Gantt and network charts, a sample project initiation document and a sample RFP for securing a consultant.

DeGennaro, Richard. "Doing Business with Vendors in the Computer-Based Library Systems Marketplace." p. 212+.
A plea for librarians to become informed regarding the complex variety of automated systems that are available. If you are unsure of your skills don't be hesitant to hire a consultant.

Kearney, J.M. A Guide to Successful Computer System Selection, p. 4-10.
Describes the process of developing a long range plan for computing.

2.7 Locating and Hiring a Project Consultant

Bernstein, Judith, ed. Turnkey Automated Circulation Systems: Aids to Libraries in the Marketplace. p.13-16.
Discusses the reasons for hiring a library automation consultant. Describes some of the tasks the consultant can perform. Also discusses the hiring process and the need for a written agreement.

Malinconico, S. Michael. "The Use and Misuse of Consultants." p. 558-560.
If maximum utility is to be derived from use of a consultant, the entire relationship requires thoughtful and careful management. This includes clear specification of the objectives to be accomplished, and the relative priorities among multiple objectives. Close monitoring of the progress of the venture is essential. Clear, sensitive, and timely feedback to help insure that efforts remain focused on the primary objective of the project; and responsible direction that takes into account mutual responsibilities, recognizing the unique contribution of the consultant to the problem at hand, are basic to success.

3.0 Analyzing the alternatives.

Anderson, Lee. Benefit-cost analysis.
A practical guide for the non-technically oriented. Emphasis is placed on the analysis for the non-profit institution.

Boss, Richard W. "Automated Circulation Control Systems." p. 151-164.
An overview of the issues that need to be addressed in defining the new system: single function vs. multifunction system, standalone vs. shared system, hardware expandability, software transportability and interfacing library systems.

Boss, Richard W. "Circulation Systems: The Options."
p. 19-22.
Brief discussion of what should be included in an idealized circulation control system.

Chapman, Edward. Library Systems Analysis Guidelines.
Good discussion of the topic.

Corbin, John. Developing Computer Based Library Systems.
p. 39-72.
Describes the development of new system requirements, the process of evaluating and comparing systems and the development of detailed design specifications.

Dougherty, Richard. Scientific Management of Library Operations.
Excellent discussion of the various techniques used in analyzing library operations.

Grosch, Audrey. Microcomputers in Libraries, p. 31-36.
Good discussion of a possible microcomputer configurations. Examples included dedicated stand-alone, front-end configurations and multiple microcomputer networks.

King, J.L. "Cost-Benefit Analysis of Information Systems Development and Operations." p.21-34.
Good overview of the benefit/cost analysis.

Kountz, John. "Library Cost Analysis: A Recipe."
p. 459-64.
Good summary of elements which should be included in a cost analysis.

Matthews, Joseph. Choosing an Automated Library System.
p. 10-14, appendices G and H.
Discusses the needs analysis and a methodology for conducting the cost/benefit analysis. Includes a good summary of the possible cost and benefit components of an automated system (appendices G and H).

Matthews, Joseph. Automated Circulation.
A report analyzing the need for an automated circulation system for the Mountain Valley Library System (CA). The author examines current circulation operations, problems, objectives, alternatives, and cost/benefit analysis. Includes a description of the methodology used, terminal requirements, system specifications and cost sharing calculations.

4.1 Introduction to the selection process.

Auer, Joseph. Computer Contract Negotiations, p.128-144.
Overview of the importance of the RFP and what it should accomplish.

Bernstein, Judith, ed. Turnkey Automated Circulation Systems: Aids to Libraries in the Marketplace. p.3-10.
Contains some very interesting comments and caveats regarding the current state of the library marketplace. It raises the question "why do you need an automated system?" The immaturity of the market and vendors, the role of the customer in R and D, in short, "let the buyer beware."

Corbin, John. Developing Computer Based Library Systems, p. 72-74, 83-84.
Brief discussion of the development of the RFP, decision criteria associated with selecting the best response and solicitation of the responses to the RFP.

Matthews, Joseph. Choosing an Automated Library System, p. 42-43.
Introduction to the selection process and a discussion of the advantages of bids vs. proposals.

4.2 The Request for Proposal.

Auer, Joseph. Computer Contract Negotiations, appendix C.
Contains a representative Request for Proposal.

Bernstein, Judith, ed. Turnkey Automated Circulation Systems: Aids to Libraries in the Marketplace. p. 17-40.
A good checklist. A model RFP describing the background, bid response, ground rules, files, functions, training system enhancements, performance, and maintenance.

Corbin, John. Developing Computer Based Library Systems. p. 73-82, appendix J.
General discussion of the contents of the RFP. Appendix J contains a sample RFP.

Kearney, J. M. A Guide to Successful Computer System Selection. p. 12-16.
General guidelines for establishing performance standards.

Matthews, Joseph. Choosing an Automated Library System, p. 42-47.
General introduction to RFP's and an outline of a sample RFP.

South Carolina State Library. Automated Circulation System: A Guide for Preparing a Request for Preposal. Columbia, S.C. South Carolina State Library, 1982.
An excellent checklist. It includes sections on background information required, instructions to vendors, a sample timetable, technical specifications, functions, training, system enhancements, performance and maintenance.

4.3 Methodologies for evaluating vendor responses.

Corbin, John. Developing Computer Based Library Systems, p.84-87, appendix K.
Brief discussion of approaches to evaluation along with a sample evaluation form.

Kearney, J.M. A Guide to Successful Computer System Selection. p. 16-18.
Good discussion of the ad-hoc approach, weights and scores and Joslins cost value technique.

Matthews, Joseph. Choosing an Automated Library System. p. 47-52.
Provides a brief discussion of the techniques included in the outline.

4.4 Surveying the users of turnkey systems.

Matthews, Joseph. Choosing an Automated Library System. p. 47-48.
Includes a sample telephone questionnaire.

Schwarz, Philip. Surveying Users of Automated Turnkey Systems.
General discussion of the survey process along with sample questions.

4.5 Writing the final report.

Corbin, John. Developing Computer Based Library Systems, p. 86.
Very brief comments on writing the final report.

5.0 The contract.

Auer, Joseph. Computer Contract Negotiations.
This is the basic book on contract negotiations. It includes chapters on: the rationale for negotiating; popular vendor ploys; general negotiation skills; the negotiation process; general contract provisions, third party leasing; used equipment acquisition; maintenance agreements and software agreements. The appendices include: a checklist for contracts; selected contract provisions; legal/contractual issues for a user RFP and excerpts from a user RFP.

Brown, Carol. The Minicomputer Simplified. p. 159-177.
Brief discussion of the general provisions which should be included in a a computer contract. A chapter entitled "A Horror Story" depicts the problems of installing a computer system in the offices of a textbook publisher. It is required reading for anyone considering automation.

Divilbiss, J.L. Negotiating for Computer Services.
A series of papers describing the contract negotiation process from various points of view. Papers deal with contracting for OCLC services, negotiating for innovative service, data processing contracts, negotiation from the librarian's and vendor's points of view and negotiations for services from within an organization.

Data Processing Management Association. Understanding Computer Contracts.
A highly technical look at computer contract language. Includes a syntax-legal analysis of standard commercial computer purchase and lease contracts. Also includes a comparison of government and commercial contracts.

Hagarty, Kevin. The Joy of Contracts.
Discusses the major elements in library contracts with turnkey system vendors. Also includes samples of the followig documents: the acceptance test plan, program license agreement, performance bond, system supply schedule, system hardware schedule and an escrow agreement.

Kearney, J.M. A Guide to Successful Computer System Selection, p. 20-30.
A detailed discussion of the various financial considerations associated with computer acquisitions. Also contains a basic outline of a contract.

Matthews, Joseph. Choosing an Automated Library System. p. 52-63.
Provides a general introduction to standard contracts, the purchase/lease contract and maintenance agreements. Provides a list of items that should be included in each. Also discusses the financial considerations associated with lease/purchase agreements.

6.0 Installing the computer.

Brownrigg, Edwin B. "Library Automation: Building and Equipment Considerations" in Implementing Computer Technology. p. 43-53.
Good discussion of scheduling for implementation, site preparation, environmental concerns and security.

Corbin, John. Developing Computer Based Library Systems. p. 88-106.
Good discussion of space layout, site preparation and the acquisition of supplies and equipment. Includes a sample set of specifications for preparing a computer room site and a checklist of special supplies, equipment and typical forms.

Matthews, Joseph. Choosing an Automated Library System. p. 64-70.
General discussion of environmental concerns, security (including a security checklist), and communication alternatives.

7.0 Implementing the system.

Boss, Richard W. "Automated Circulation Control Systems." p. 221-231, 233-237
Provides an overview of site preparation, installation, training, file creation, patron orientation and the acceptance test. The appendices include a sample acceptance test plan.

Freedman, Maurice, ed. Library Automation: Five Case Studies.
Covers the acquisition and implementation of automated circulations at; the University of Arizona (GEAC); Tuscon Public Library (CLSI); Houston Area Library System (Dataphase);Queens Borough Public Library (Gaylord); and Anaheim Public Library (SCI). Each paper describes the process from its initial conception through selection, contracting, installation and implementation. A management perspective and future plans are also discussed. Well worth reading if you are planning an automated system.

Nelson, Bonnie R. "Implementation of On-Line Circulation at New York University."
Front line experience with the implementation of a turnkey circulation system is described. Involvement of the staff in a careful planning process is vital to success. File conversion of both patron and bibliographic data is covered in some detail. Weaknesses and strengths of the automated system are also summarized. Useful from a historical perspective.

Presser, Carolynne. Report on the Installation of an Automated Circulation System. p. 12-14.
Briefly assesses the impact of the automated system on library operations. Covers system performance, staffing patterns, staff training, operating costs, collection management and user reaction.

Rendler, Richard E. "SCICON comes to San Jose."
Describes the design and implementation of the San Jose Public Library circulation control system developed by Systems Control under custom contract.

7.1 Managing the Computer System.

Corbin, John. Developing Computer Based Library Systems, p. 96-99, appendices N,O, and P.
Covers user documentation, orientation programs, and training. The appendices include: a sample general orientation guide, a sample procedure manual and a sample user's guide for a piece of hardware.

Juergens, Bonnie. "Staff Training Aspects of Circulation System Implementation." p. 203-08.
Developing an adequate staff training program is a critical implementation concern. Advise is given on ways to structure the training sessions. Particular attention is paid to personnel considerations and the important qualities of the training coordinator. The problem of developing reasonably comprehensive documentation is also discussed.

Matthews, Joseph. Choosing an Automated Library System, p. 71-72.
Brief comments on staff training.

7.2 Creating the Data base.

Barkalow, Pat. "Conversion of Files for Circulation Control". p. 209-213.
Bibliographic file conversion is a labor-intensive task often costing more than all other aspects of system implementation combined. Suggestions for reducing labor costs, improving accuracy, and maximizing computer use are presented. At the same time, libraries should be aware of regional, state and national plans for resource sharing prior to engaging in conversion projects in the first place.

Corbin, John. Developing Computer Based Library Systems. p. 101-103.
Brief discussion of the options.

Epstein, Susan Baers. "Converting Bibliographic Records for Automation: Some Options." p. 474-476.
Emphasizes the importance of creating full MARC II records. Briefly describes three major options for creating machine readable records. These include: 1) matching against full bibliographic records held by a bibliographic utility or commercial vendor; 2) submitting partial records or search arguments on magnetic tape to a bibliographic utility or commercial vendor or 3) keying in full records.

Matthews, Joseph. Choosing an Automated Library System. p. 73-74.
Brief discussion of the options.

7.3 Labeling the collection.

Presser, Carolynne. Report on the Installation of an Automated Circulation System. p. 6-7.
Describes how the collection was labeled. Includes a general flowchart of the process.

7.4 Tailoring the system to fit your needs.

7.5 Designing the reports and notices.

7.6 Conducting the acceptance test.

Corbin, John. Developing Computer Based Library Systems, p. 104-106.
Brief discussion of system evaluation and acceptance.

7.7 Public relations.

Bruer, J. Michael. "The Public Relations Component of Circulation System Implementation."
Apart from having a system so good that it literally promotes itself, a well designed public relations program plays a pivotal role. Public relations should be no mystery: it is basically a form of communications directed toward staff and patron alike. The circulation librarian is the key person in this communications effort.

Corbin, John. Developing Computer Based Library Systems, p. 99-100.
Outlines possible public relations activities.

7.8 Instructing the public.

Matthews, Joseph. Choosing an Automated Library System, p. 72.
Brief discussion of introducing the patron to the system.

7.9 Post implementation evaluation.

Matthews, Joseph. Choosing an Automated Library System. p.75-76
Brief discussion of events that should occur after the system has been implemented.

8.1 Circulation Control.

Boss, Richard W. and McQueen, Judy. "Automated Circulation Control Systems." p. 125-266.
An excellent overview of the options available. Includes a general discussion of computer hardware and software, issues in planning an automated system, a general overview of the turnkey vendors, a look at software packages available, procedures for the selection and procurement of systems. Includes a list of installations and an annotated bibliography. A note of caution, information regarding vendor products changes very fast. Always check with the vendor for current information.

Freedman, Maurice J. Library Automation: Five Case Studies.
Covers the acquisition and implementation of automated circulations at: the University of Arizona (GEAC); Tuscon Public Library (CLSI); Houston Area Library System (Dataphase);Queens Borough Public Library (Gaylord); and Anaheim Public Library (SCI). Each paper describes the process from its initial conception through selection, contracting, installation and implementation. A management perspective and future plans are also discussed. Well worth reading if you are planning an automated system.

Matthews, Joseph R. "The Automated Library System Marketplace, 1982: Change and More Change!" p. 547-643.
This article examines the automated library system marketplace from three perspectives: the turnkey system, systems developed by a library which may be transferred to another library, and the library microcomputer. It looks at the emergence of the integrated system, the number of customers for each vendor and the size of the installed systems. It also provides a list of vendors for each option identified.

8.2 Automated catalog.

Hildreth, Charles R. On-Line Public Access Catalogs: The Users Interface.
A classic text designed to systematically document the state-of-the-art in the development of user interfaces in on-line public access catalogs (OPACs).

Matthews, Joseph R. Public Access to Online Catalogs: A Planning Guide for Managers.
This book is intended as a basic primer on public access online catalogs for librarians considering their installation. It offers: a basic introduction to online catalogs; advice on choosing, planning, and implementing the system; overviews of terminals, computers, and databases; consideration of the effects of online catalogs on patrons and staff; and a forecast of future developments in the field. Over half the book is devoted to detailed profiles of the existing systems. The entire package is presented in a generally non-technical manner, accessible to the relatively uninitiated. A bibliography and glossary add to the volume's usefulness.

8.9 Retrospective conversion.

Epstein, Susan Baerg. "Converting Bibliographic Records for Automation: Some Options." p. 474-476.
Emphasizes the importance of creating full MARCH II records. Briefly describes three major options for creating machine readable records. These include: 1) matching

against full bibliographic records held by a bibliographic utility or commercial vendor; 2) submitting partial reccrds as search arguments on magnetic tape to a bibliographic utility or commercial vendor or 3) keying in full records.

Epstein, Susan Baerg. "Converting Records for Automation at the Copy Level." p. 642-643.
Once a library has created a bibliographic record it must also create a copy level record for each item in the collection. The author examines three options: 1) converting on the system, 2) converting via a neighbor and 3) creation of custom labels.

APPENDIX B
SELECTING AND IMPLEMENTING AUTOMATED SYSTEMS

A SELECTED AND ANNOTATED BIBLIOGRAPHY

MONOGRAPHS

Auer, Joseph and Charles E. Harris. Computer Contract Negotiations. New York: Van Nostrand Reinhold Co., 1982. This is the basic book on contract negotiations. It includes ploys; general negotiation skills; the negotiation process; general contract provisions; third party leasing; used equipment acquisition; maintenance agreements and software agreements. The appendices include: a checklist for contracts; selected contract provisions; legal/contractual issues for a user RFP and excerpts from a user RFP.

Anderson, Carol Lee, and Jo Ellen Herstand. Automating a Library: An Investigative Study. Norman: University of Oklahoma, 1979 U.S. Educational Resources Information Center, ERIC Document ED 191 496, 1979.
A brief description of how the University of Oklahoma reviewed the state of the art and examined possible applications of an automated system. Contains a chart used to compare the various options.

Anderson, Lee G. and Russell F. Settle. Benefit-Cost Analysis: A Practical Guide. Lewxington, MA: D.C. Heath, 1977.
A practical guide for the non-technically oriented. Emphasis is placed on the analysis for the non-profit institution.

Bahr, Alice Harrison. Automated Library Circulation Systems 1979-80. 2nd ed. White Plains, NY: Knowledge Industry Publications Inc., 1979.
A general discussion of automated circulation systems. Provides a very brief look at the criteria for selecting a system. Primary emphasis is on a general overview of the major systems on the market at the time the book was written. The user should be aware that any book of this type is dated when it is published.

Bernstein, Judith, ed. Turnkey Automated Circulation Systems: Aids to Libraries in the Marketplace. Chicago: American Library Association, LAMA, 1980.
A lengthy survey of libraries using turnkey systems. Each survey response: profiles the library; indicates the process used in selecting a system; how the machine readable files were built; environmental change required to accomodate the system; a general description of hardware, software and training; and satifaction with system. Also included is a model request for proposal for a system.

Bierman, Kenneth J. Automation and the Small Library. Chicago: American Library Association, 1982.
A brief historical overview of the major periods in library automation. Describes the major events leading to what is

happening today. Looks at the major application areas of library automation. Discusses how one should plan for library automation. Brief but good summary of the topic.

Boss, Richard. The Library Manager's Guide to Automation. White Plains, NY: Knowledge Industry Publications, Inc., 1979.
Provides a brief look at the fundamentals of library automation. Includes an overview of some common library automation applications and future trends. Provides a general look at the planning process, system implementation and the major risks associated with library automation.

Brown, Carol. The Minicomputer Simplified: An Executive's Guide to the Basics. New York: The Free Press, 1980.
A general introduction to minicomputers, what they are, what makes them go, what they do, and how to use them effectively. Discusses the writing of the Request for Proposal, the role of the computer consultant, how to evaluate proposals, the contract and the implementation of the system. Written for the business executive but contains much useful information for the librarian.

Brownrigg, Edwin B. "Library automation: Building and Equipment Cosiderations in Implementing Computer Technology" in Advances in Library Administration and Organization, Volume 1. Greenwich, CT: JAI Press, 1982.
Good discussion of scheduling for implementation, site preparation, environmental concerns and security.

Chapman, Edward et. al. Library Systems Analysis Guidelines. New York: Wiley-Interscience, 1970.
Provides a good discussion of the topics.

Cohen, Elaine and Aaron Cohen. Automation Space Management, and Productivity. New York: R.R. Bowker, 1981.
This work stresses the impact of automation on the physical organization of space and facilities within the library and the importance of anticipating the psychological needs of patrons and personnel in adjusting to the implementation of new technology. Some of the topics discussed are: the role of the library manager in the planning, problem solving and staff training processes; the relationship between environmental and operational changes; general space planning and interior design concepts; physical planning for electronic systems; lighting, power, acoustics, and energy; furniture and equipment purchasing and placement; work improvement/work simplification; facility design and productivity; role of libraries in the information needs of the next two decades; and the behavioral aspects of space and space arrangement. Appears to be the best book around on the topic of designing the library for the electronic age.

Corbin, John. Developing Computer Based Library Systems. Phoenix, AZ: Oryx Press, 1981.
One of the better books on the subject. Contains an overview of library systems, discusses project planning and management, how

to analyze the old system, develop requirements for a new system, how to evaluate and compare systems, design specifications, acquisition and implementation of computer systems. Contains a large number of good appendices and a selected bibliography.

Data Processing Management Association. Understanding Computer Contracts. Park Ridge, IL: Data Processing Management Association, 1974.
A highly technical look at computer contract language. Includes a syntax-legal analysis of standard commercial computer purchase and lease contracts. Also includes a comparison of government and commercial contracts.

Divilbiss, J.L., ed. Negotiating for Computer Services. Proceedings of the 1977 Clinic on Library Applications of Processing. Urbana, IL: University of Illinois, Graduate School of Library Science, 1978.
A series of papers describing the contractual negotiation process from various points of view. Papers deal with contracting for OCLC services, negotiating innovative service, data processing contracts, negotiation from the librarian's and vendor's points of view and negotiation for services from within an organization.

Dougherty, Richard and Fred J. Heinritz. Scientific Management of Library Operations. Metuchen, NJ: Scarecrow Press, 1982.
Excellent discussion of the various techniques used in analyzing library operations.

Freedman, Maurice J. Library Automation: Five Case Studies. Chicago: American Library Association, 1982.
Covers the acquisition and implementation of automated circulations at; the University of Arizona (GEAC); Tuscon Public Library (CLSI); Houston Area Library System (Dataphase); Queens Borough Public Library (Gaylord); and Anaheim Public Library (SCI). Each paper describes the process from its initial conception through selection, contracting, installation and implementation. A management perspective and future plans are also discussed. Well worth reading if you are planning an automated system.

Grosch, Audrey. Minicomputers in Libraries, 1978-80. White Plains, NY: Knowledge Industry Publications, Inc., 1979.
Good discussion of the uses of minicomputers in libraries; integrated vs. single application systems; methods of developing computer systems; approaches to networking; the Request for Proposal; modular growth patterns for computers; perpheral equipment for minicomputers; distributed computing and data base management systems.

Hagarty, Kevin. The Joy of Contracts. Tacoma, WA: Tacoma Public Library, 1979.
A discussion of the major elements found in a library turnkey vendor contract. Also includes samples of the following documents: acceptance test plan, program license agreement, performance bond, system supply schedule, system hardware schedule and an escrow agreement.

Hildreth, Charles R. On-Line Public Access Catalogs: The Users Interface. Dublin, OH., OCLC, 1982.
A classic text designed to systematically document the state-of-the-art in the development of user interfaces in on-line public access catalogs (OPACs).

Kearney, J.M. and J.S. Mitutuinovich. A Guide to Successful Computer System Selection. Park Ridge, IL: Data Processing Management Association, 1976.
An overview of the selection process from the point of view of a corporate data processing person. Includes chapters on planning for computer acquisition, system evaluation, financial considerations and legal considerations.

Kimber, R.T. Automation in Libraries. New York: Pergamon Press, 1974.
A general discussion from the British perspective. Covers reasons for automating, how to plan and implement an automated system and descriptions of some of the common applications.

Lancaster, F. Wilfred, ed. Problems and Failures in Library Automation. Proceedings of the 1978 Clinic on Library Applications of Data Processing. Urbana, IL: University of Illinois, Graduate School of Library Science, 1979. (ERIC Document Reproduction No. ED. 174 223.)
An interesting series of papers on the topic. Discusses reaction to failure, problems of governmental bureaucracy, the development and demise of a circulation system, building a network, problems in teaching automation and failure in a library media center.

Matthews, Joseph R. Automated Circulation: Planning for a Region. New York: R.R. Bowker, 1981.
A final report describing a plan for automated circulation for a multitype group of California libraries. Summarizes the current operations, problems and objectives. Describes the circulation control system alternatives and a cost benefit analysis of each. Appendices contain a study methodology, projected terminal needs, system specifications and a cost sharing scheme.

Matthews, Joseph R. Choosing an Automated Library System: A Planning Guide. Chicago: American Library Association, 1980.
One of the better works currently available on the topic of selecting and implementing an automated system. It follows the process from start to finish. Topics covered include: how to begin; the needs analysis; considering alternatives; the selection process; the contract; computer installation; and implementation of the system. Also included a number of good appendices.

Matthews, Joseph R. Public Access to Online Catalogs: A Planning Guide for Managers. Weston, CT: Online, Inc., 1983.
This book is intended as a basic primer on public access online catalogs for librarians considering their installation. It

offers: a basic introduction to online catalogs; advice on choosing, planning, and implementing the system; overviews of terminals, computers, and databases; consideration of the effects of online catalogs on patrons and staff; and a forecast of future developments in the field. Over half the book is devoted to detailed profiles of the existing systems. The entire package is presented in a generally non-technical manner, accessible to the relatively uninitiated. A bibliography and glossary add to the volume's usefulness.

Port, Idelle and Matthews, Joseph. Report on a Study of the feasibility of Automated Circulation Systemwide for Penisula Library System (San Mateo County, CA). November 1980. (ERIC Document Reproduction No. ED 200 254.)
This examination of the feasibility of implementing an automated circulation system within San Mateo County's Peninsula Library System was undertaken to determine if the system should automate material circulation systemwide in order to reduce operating costs while improving circulation procedures and increasing patron access to system collections. Report describes PLS cooperative programs, current PLS circulation control alternatives and PLS action plan. Appendices and exhibits illustrate cost data, system configurations, budgetary information and other considerations.

Presser, Carolynne. Report on the Installation of an Automated Circulation System. Waterloo, Ontario: University of Waterloo, 1980.
A brief description of the design, implementation and impact of the University of Waterloo automated circulation system. Contains a description of the labeling process along with a flowchart of the labeling process. Also includes screen displays of the system.

Schwarz, Philip. Surveying Users of Automated Turnkey Systems. Menomonie, WI: Wisconsin Department of Public Instruction, 1983.
General discussion of the survey process along with an outline of the questions libraries ought to be asking of users.

South Carolina State Library. Automated Circulation System: A Guide for Preparing a Request for Proposal. Columbia, S.C.: South Carolina State Library, 1982.
An excellent checklist. It includes sections on background information required, instructions to vendors, a sample timetable, technical specifications, functions, training, system enhancements, performance and maintenance.

Swihart, Stanley J. and Beryl Hefley. Computer Systems in the Library: A Handbook for Managers and Designers. Los Angeles, CA: Melville Publishing, 1973.
General discussion of computer systems in libraries from the British point of view. Covers a variety of topics including: the reasons for automating; planning the automation program; hardware and software operations. Includes chapters describing the common library applictons for computers.

Tedd, L.A. An Introduction to Computer-Based Library Systems. New York: Heyden, 1977.
A general introduction to library computing written from the British perspective. Contains a general overview of the subject, description of what a computer is, how to communication with it, how to develop a system and specific chapters on the major library applications.

Yankus, Anthony G. A Planning Process for Automated Shared Circulation Systems. Ohio State Library, Columbus, OH., May 1980.(ERIC Document Reproduction No. ED 200 233.)
An outline for librarians who want to cooperatively plan to implement a shared circulation system, this guide employs a method of planning based on policy analysis.

PERIODICALS

Advanced Technology Libraries.
Published by Knowledge Industry Publications. Recent issues have delt with turnkey vendors, COM, Videotext, and electronic publishing.

Barkalow, Pat. "Conversion of Files for Circulation Control." Journal of Library Automation 12 (September 1979): 209-213.
Bibliographic file conversion is a labor-intensive task often costing more than all other aspects of system implementation combined. Suggestions for reducing labor costs, improving accuracy, and maximizing computer use are presented. At the same time, libraries should be aware of regional, state and national plans for resource sharing prior to engaging in conversion projects in the first place.

Boss, Richard W. and McQueen, Judy. "Automated Circulation Control Systems." Library Technology Reports 18 (March-April 1982) 125-266.
An excellent overview of the options available. Includes a general discussion of computer hardware and software, issues in planning an automated system, a general overview of the turnkey vendors, a look at software packages available, procedures for the selection and procurement of systems. Includes a list of installations and an annotated bibliography. A note of caution, information regarding vendor products changes very fast. Always check with the vendor for current information.

Boss, Richard W. "Circulation Systems: The Options." Library Technology Reports 15 (January-February 1979): 7-105.
Lists the criteria for an idealized circulation system. Provides a general discussion of manual systems, photocharging systems, batch processing systems, stand-alone on-line systems, distributed processing systems and front end systems. Includes a general overview of the process for selecting a system. The reader should be aware that much of the material relating to vendors is dated.

Boss, Richard. "General Trends in Implementation of Automated Circulation Systems." Journal of Library Automation 12 (September 1979): 198-202.
Building automated circulation systems has become a sizeable business activity. Overall trends in the turnkey system market are described. These include tendencies toward greater functional integration, improved user interfaces and shared facilities linking many libraries together in a single system. The role of bibliographic utilities is also briefly explored.

Bruer, J. Michael. "The Public Relations Component of Circulation System Implementation." Journal of Library Automation 12 (September 1979): 124-18.
Apart from having a system so good that it literally promotes itself, a well-designed public relations program plays a pivotal role. Public relations should be no mystery: it is basically a form of communications directed toward staff and patron alike. The circulation librarian is the key person in this communications effort.

Computer Equipment Review
Published by Meckler Publishing. Recent issues have reviewed microcomputers, word processing systems, printers, and turnkey circulation systems. Reviews are mainly descriptive in nature rather than evaluative.

Conroy, Barbara. "The Human Element: Staff Development in the Electronic Library." Drexel Library Quarterly 17 (Fall 1981): 91-106.
Excellent article on the topic. Points out that even in an automated library environment, library personnel are the key to developing and delivering quality information services. Staff development is a key to effective operations in the electronic library. Staff development efforts offer learning opportunities to enable library personnel to adapt to new needs and times. At the same time, such efforts preserve stability important to the institutions' role and functions.

DeGennaro, Richard. "Library Automation and Networking Perspectives on Three Decades." Library Journal 108 (April 1, 1983): 629-635.
Provides an overview of the three major decades of library automation. The first decade, the 1960's, was dominated by primitive local systems. The second decade, the 1970's, was dominated by large multitype and multipurpose library networks. The current and third decade, the 1980's, will be dominated by a return to local systems. The new local systems will be sophisticated, multifunction turnkey systems on mini and microcomputers; and they will have lines to a variety of library and commercial networks on large mainframes.

Dickson, G.W. and Simmons, John K. "The Behavioral Side of MIS: Some Aspects of the People Problem." Business Horizons 13 (August 1970) 59-71.
To enjoy the technical benefits of management information systems, it is often necessary to solve the dysfunctional side effects stemming from behavioral problems in short, people problems. Reactions to the installation of MIS may range from failure to use the output to outright sabotage. The authors identify three types of dysfunctional behavior: aggression, projection, and avoidance that may appear in four groups operating personnel, operating management, technical staff, and top management. Only the technical staff being designers and agents of change show no dysfunctional behavior. Operating management, the group that should enjoy most of the system benefits, goes farther than any other groups in its resistance, and exhibits all three forms. The authors suggest ways of minimizing the behavioral problems that may follow introduction of MIS.

DeGennaro, Richard. "Doing Business with Vendors in the Computer-based Library Systems Marketplace." American Libraries 9 (April 1978): 212+.
A general plea for librarians to become more informed regarding the complex variety of automated systems are available in the marketplace. The librarian should not hesitate to use a consultant if one is required.

Epstein, Susan Baerg. "Converting Bibliographic Records for Automation: Some Options." Library Journal 108 (March 1, 1983). p. 474-476.
Emphasizes the importance of creating full MARC II records. Briefly describes three major options for creating machine readable records. These include: 1) matching against full bibliographic records held by a bibliographic utility or commercial vendor; 2) submitting partial records as search arguments on magnetic tape to a bibliographic utility or commercial vendor or 3) keying in full records.

Epstein, Susan Baerg. "Converting Records for Automation at the Copy Level." Library Journal 108 (April 1, 1983): 642-643.
Once a library has created a bibliographic record it must also create a copy level record for each item in the collection. The author examines three options: 1) converting on the system, 2) converting via a neighbor and 3) creation of custom labels.

Epstein, Susan Baerg. "Suddenly Last Decade! Automation Arrives." Library Journal 108 (February 1, 1983). p.183-185.
Discusses a number of factors which have contributed to the dramatic growth in automated circulation and catalog functions. These include the MARC II format, reduced computer costs, and entrance of commercial vendors into the library computer market.

Juergens, Bonnie. "Staff Training Aspects of Circulation System Implementation." Journal of Library Automation 12 (September 1979): 203-08.
Developing an adequate staff training program is a critical implementation concern. Advice is given on ways to structure the training sessions. Particular attention is paid to personnei considerations and the important qualities of the training coordinator. The problem of developing reasonably comprehensive documentation is also discussed.

King, J.L. and Schrems, E.L. "Cost-Benefit Analysis of Information Systems Development and Operations," Computing Surveys 10 March 1978): 21-34.
Good overview of cost/benefit analysis.

Kountz, John. "Library Cost Anlysis: A Recipe," Library Journal 97 (February 1, 1972): 459-64.
Good summary of the elements which should be a part of in any cost analysis. Includes an annotated bibliography on the subject.

Library System Newsletter.
Published by ALA. Recent issues have delt with COM, digital telefacsimile, video text, patron access catalogs, electronic mail, turnkey system vendor news. This newsletter is edited by Richard Boss, one of the better known library automation consultants.

Library Technology Reports.
Published by ALA. Recent issues have delt with automated circulation systems, terminals, retrospective conversion and bibliographic utilities.

Magrath, Lynn L. "Computers in the Library: The Human Element." Information Technology and Libraries 1 (September 1982): 266-270.
Describes the Pikes Peak Library District experience with the development of computer applications in the library . Discusses staff reaction and public reaction to the system. Concludes that (1) planning is essential and (2) communications are important.

Malinconico, S. Michael. "Hearing the Resistance." Library Journal, 108 (January 15, 1983): 111-113.
Indicates that change has both a social and technical aspect. The social aspect of change, i.e., the manner in which it effects a person's relationships with and within an organization, is of particular importance in determining resistance. Individuals are remarkably resourceful in finding ways of defeating and rejecting changes that threaten established relationships.

Malinconico, S. Michael. "Listening to the Resistance." Library Journal, 108 (February 15, 1983): 353-355.
A continuation of an earlier article "Hearing the Resistance." Describes how individuals resist the isolation resulting from a computer environment. The individual also may lose his

structural identity when participating in a cooperative environment. The resistance to change can be modified by providing the individual the ability to influence the nature and direction of change. New managerial requirements and organizational structures may be required to deal with the automated library.

Malinconico, S. Michael. "The Use and Misuse of Consultants." Library Journal, 108 (March 15, 1983): 558-560.
If maximum utility is to be derived from use of a consultant, the entire relationship requires thoughtful and careful management. This includes clear specification of the objectives to be accomplished, and the relative priorities among multiple objectives. Close monitoring of the progress of the venture is essential. Clear, sensitive, and timely feedback to help insure that efforts remain focused on the primary objective of the project; and responsible direction that takes into account mutual responsibilities, recognizing the unique contribution of the consultant to the problem at hand, are basic to success.

Matthews, Joseph R. "The Automated Library System Marketplace, 1982: Change and More Change!" 108 Library Journal (March 15, 1983): 547-643.
This article examines the automated library system marketplace from three perspectives: the turnkey system, systems developed by a library which may be transferred to another library, and the library microcomputer. It looks at the emergence of the integrated system, the number of customers for each vendor and the size of the installed systems. It also provides a list of vendors for each option identified.

Nelson, Bonnie R. "Implementation on On-Line Circulation at New York University." Journal of Library Automation 12 (September 1979): 219-32.
Front line experience with the implementation of a turnkey circulation system is described. Involvement of the staff in a careful planning process is vital to success. File conversion of both patron and bibliographic data is covered in some detail. Weaknesses and strengths of the automated system are also summarized. Useful from a historical perspective.

"New Technology" (column). Library Journal.
Covers new developments in the area of library automation.

Rendler, Richard E. "SCICON Comes to San Jose." Library Journal 106 (February 1, 1981): 311-13.
Describes the design and implementation of the San Jose Public Library circulation control system custom developed by Systems Control.

APPENDIX C

SAMPLE DOCUMENTS AVAILABLE FROM THE WISCONSIN DEPARTMENT OF PUBLIC INSTRUCTION

REQUESTS FOR PROPOSALS (RFP'S)/SYSTEM SPECIFICATIONS

Atlanta Public Library, June, 1978.

Champagne, Illinois. n.d.

Brandeis University Library 1983.

City of Aurora, Colorado. March, 1979.

City of Duluth. n.d.

Consortium to Develop an On-line Catalog (CONDOC). June, 1982.

Greenville County. n.d.

Hawaii State Library System. n.d.

Janesville Public Library. July, 1982.

L.E. Phillips Memorial Public Libreary. n.d.
Eau Claire, Wisconsin

Madison Public Library. April, 1982.
Madison, Wisconsin
Available in paper form cr on an IBM System 6 disk

Massachusetts Institute of Technology Libraries, 1982.

Monroe County Library System. 1981.
Rochester, NY

State of New Mexico. n.d.

State of Wyoming. 1979.

Tulas City County Library. February, 1979.

University of Tennessee. 1982.

University of Wisconsin Madison. October, 1979.

West Central Wisconsin Library Computing Cooperative. July, 1980.
Menomonie, Wisconsin

Wisconsin. Department of Public Instruction model. 1981.

NEEDS ANALYSIS

Iowa City Public.

Janesville Public Library.

L.E. Phillips Memorial Public Library, Eau Claire, Wisconsin.

Madison Public Library.

Oshkosh Public Library.

REQUESTS FOR INFORMATION (RFI)

Oshkosh Public Library. June 1982.

Regina Public Library. 1981.

CONTRACTS

SMALL PUBLIC LIBRARY

LARGE COUNTY LIBRARY

SMALL UNIVERSITY LIBRARY

NETWORK AGREEMENTS

Capital Regional Library Council

Consortium for Automated Library Services

Houston Area Library System

LION Libraries On-Line

Spokane County Automated Library System